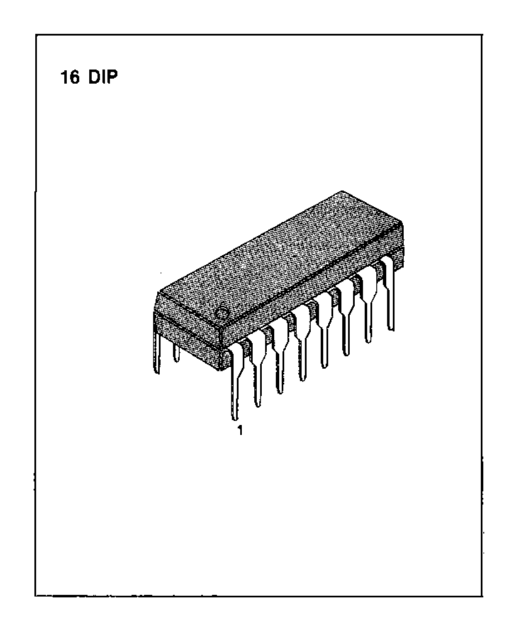
DUAL PRE-POWER AMPLIFIER WITH DC VOLUME CONTROL

The KA22134 is a monolithic integrated circuit designed for use in low voltage and low power applications. It has all functions including a dual audio pre-power amplifier, DC volume control and headphone drive circuits.

It is suitable for portable tape recorders or headphone cassette recorders.



FEATURES

- **Built-in DC volume control circuit.**
- **Wide operation supply voltage: $V_{CC} = 1.8 \sim 6V$**
- **Only a few components to build headphone cassette tape recorders.**
- **Built-in ripple filter.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA22134	16 DIP	−20°C ~ +75°C

BLOCK DIAGRAM

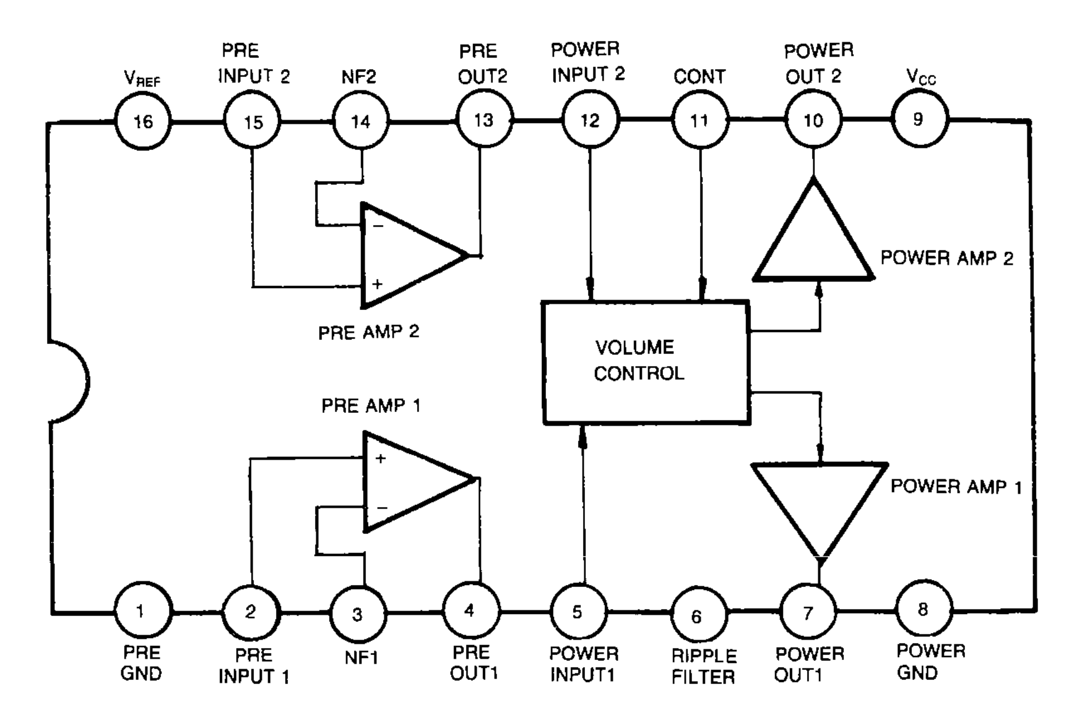


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	7	V
Power Dissipation	P_D	75Ω	mW
Operating Temperature	T_{OPR}	−20 ~ +75	°C
Storage Temperature	T_{STG}	−40 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(V_{CC} = 3V, Ta = 25°C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCQ1}	V_I = 0, V_{OL} = MIN		9	13	mA
	I_{CCQ2}	V_I = 0, V_{OL} = MAX		11.0		mA
Cross Talk	CT	R_G = 2.2KΩ, V_O = −10dBm	34	40		dB

PRE-AMPLIFIER SECTION

(V_{CC} = 3V, Ta = 25°C, f = 1KHz, R_{L1} = 10KΩ, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Open Loop Voltage Gain	G_{VO}	V_I = 0.2mV	55	62		dB
Closed Loop Voltage Gain	G_{VC1}	V_O = −10dBm, NAB 1KHz		33		dB
Output Voltage	V_O	THD = 1%	600	720		mV
Total Harmonic Distortion	THD_1	V_O = −10dBm		0.04	0.1	%
Ripple Rejection Ratio	RR_1	R_G = 2.2KΩ V_R = −20dBm, f_R = 100Hz		46		dB
Equivalent Input Noise Voltage	V_{NI}	R_G = 2.2KΩ, BW = 30 ~ 20KHz Gain for NAB 1KHz		1.2	2.0	μV

POWER AMPLIFIER SECTION

(V_{CC} = 3V, Ta = 25°C, f = 1KHz, R_{L2} = 32Ω, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Power	P_{O1}	THD_2 = 10%	20	27		mW
	P_{O2}	THD_2 = 10%, R_L = 16Ω		39		mW
Total Harmonic Distortion	THD_2	P_O = 10mW, Volume: 100%		0.5	1.2	%
	THD_3	P_O = 10mW, Volume: 50%		0.3		%
Closed Loop Voltage Gain	G_{VC2}	V_O = −10dBm, Volume: 100%	28	30	32	dB
	G_{VC3}	V_O = −10dBm		15		dB
Channel Balance	CB	V_O = −10dBm	−1.5	0	−1.5	dB
Volume Rejection Ratio	VOL_{REJ}	V_O = −10dBm, Volume: 100% to 0%	66	72		dB
Output Noise Voltage	V_{NO}	BW = 30 − 20KHz, R_G = 600Ω		250	320	μV
Ripple Rejection Ratio	RR_2	R_G = 600Ω, f_R = 100Hz V_R = −20dBm		46		dB

TEST CIRCUIT

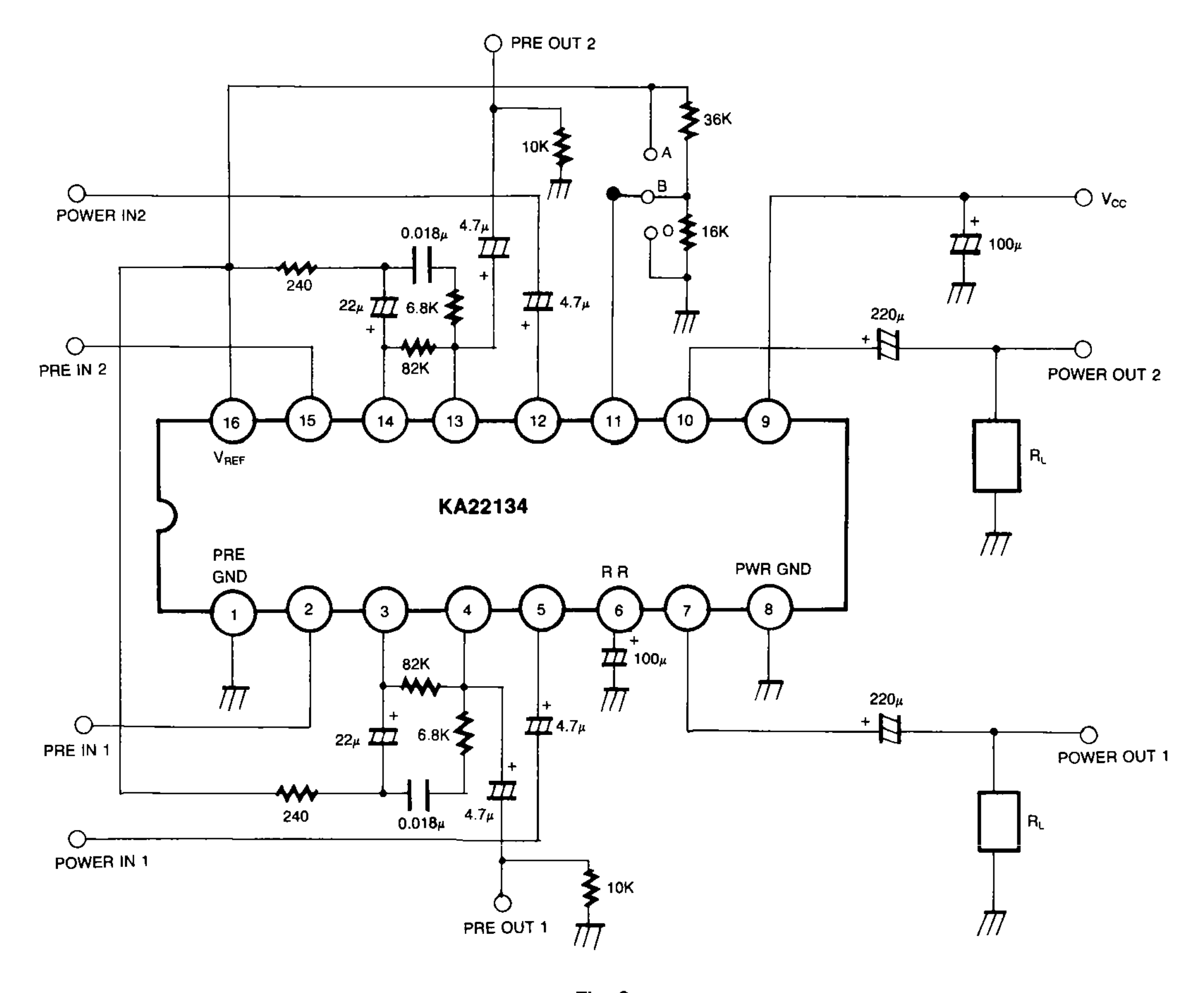


Fig. 2

APPLICATION CIRCUIT

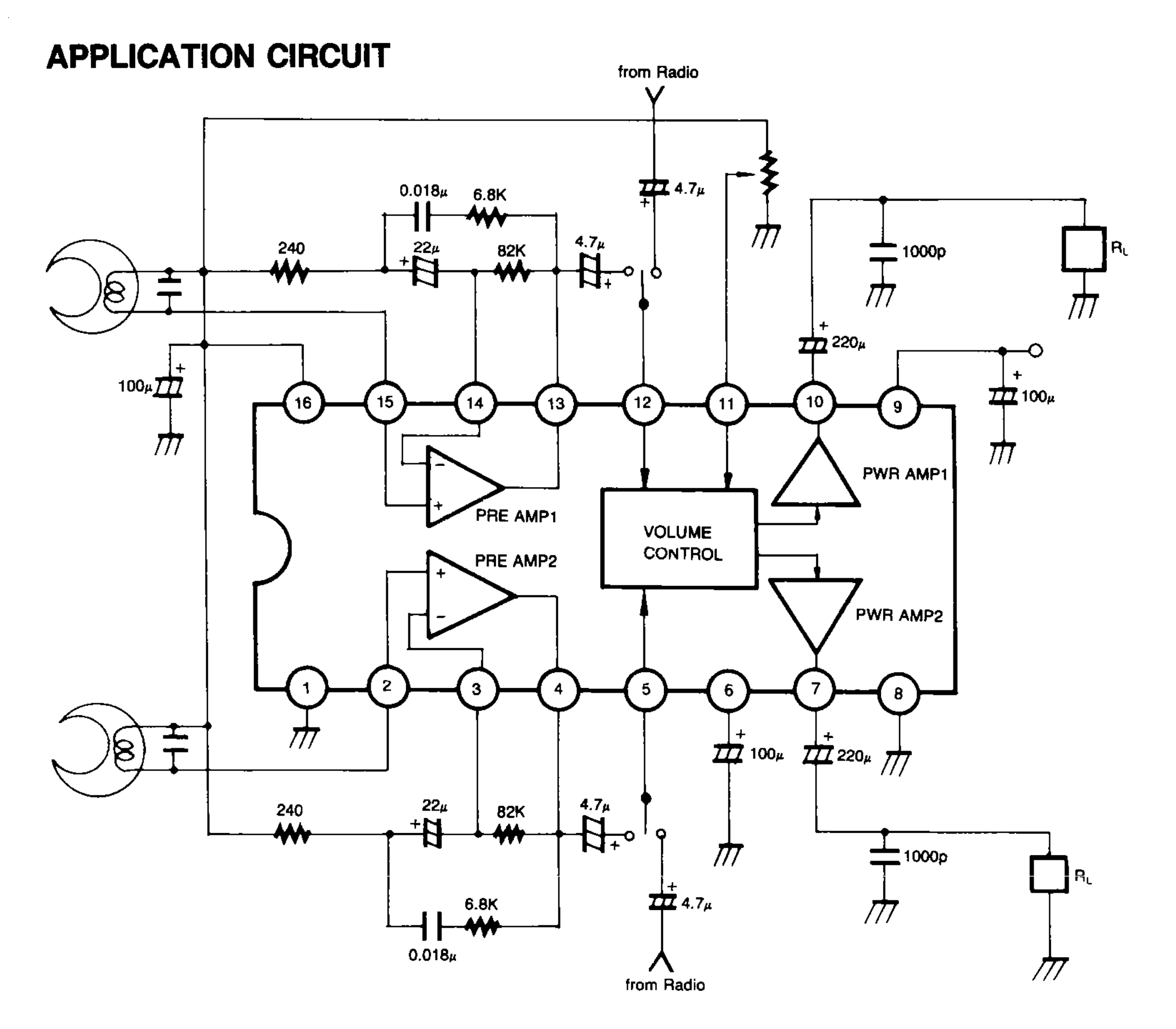


Fig. 3